IN THE CLAIMS:

Please cancel claims 44 - 52, 60 - 66, 68, 69, 73 and 74.

Please add the following new claims.

Claim 75 An isolated antigen prepared by a method comprising:

(a) providing a sample of a *Mycoplasma*,

(b) providing an antibody probe including at least one antibody against the *Mycoplasma*, said at least one antibody being produced by a method comprising

(i) providing a biological sample taken a short time after a mammal has been challenged with the *Mycoplasma* or an extract comprising the *Mycoplasma* at an infection or lesion site, said sample being taken from the infection or lesion site or an area close to the infection or lesion site;

(ii) isolating antibody producing cells from the biological sample;

(iii) culturing the isolated cells *in vitro* in suitable culture medium; and

(iv) harvesting the at least one antibody from said cultured cells;

(c) probing the sample with the antibody probe to detect at least one antigen; and

(d) isolating the at least one antigen detected.

Claim 76 An isolated antigen comprising a molecular structure that is identifiable with an antibody probe produced by harvesting an antibody from antibody producing cells of a mammal that are at or close to an infection or lesion site within a short time after said mammal is challenged by infection with *Mycoplasma hyopneumoniae* at said infection or lesion site, said molecular structure being a native *Mycoplasma hyopneumoniae* antigen having an approximate molecular weight in kilodaltons (kD) of between 110 - 114, 90 - 94, 72 - 75, 60 - 64, 52 -54 or 46 - 48, or being a mutant, derivative or fragment of the native antigen that stimulates production of the antibody in the antibody producing cells, wherein if the molecular structure is the native antigen having the molecular weight between 72 - 75 kD, the molecular structure contains an N-terminal amino acid sequence comprising SEQ ID NO:12.

Claim 77 An isolated antigen according to claim 76, wherein the molecular structure comprises the N-terminal amino acid sequence comprising SEQ ID NO:12.

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Claim 78 An isolated antigen according to claim 77, comprising at least one internal amino acid sequence selected from the group consisting of SEQ ID NO13; SEQ ID NO:14 and SEQ ID NO:15.

Claim 79 An isolated antigen according to claim 76, wherein the molecular structure has a molecular weight between 60 - 64 kD and has an N-terminal amino acid sequence comprising

SEQ ID NO:10 or SEQ ID NO:11.

Claim 80 An isolated antigen according to claim 76, wherein the molecular structure has a molecular weight between 52 - 54 kD and has an N-terminal amino acid sequence comprising SEQ ID NO:7.

Claim 81 An isolated antigen according to claim 80, comprising at least one internal amino acid sequence selected from the group consisting of SEQ ID NO:8 and SEQ ID NO:9.

Claim 82 An isolated antigen according to claim 76, wherein the molecular structure has a molecular weight between 46 - 48 DK and has an N-terminal amino acid sequence comprising SEQ ID NO:3.

Claim 83 An isolated antigen according to claim 82, comprising at least one internal amino acid sequence from the group consisting of SEQ ID NO:4; SEQ ID NO:5 and SEQ ID NO:6.

Claim 84 A method of identifying an antigen associated with a *Mycoplasma*, said method comprising:

(a) providing a sample of a *Mycoplasma*;

(b) providing an antibody probe including at least one antibody against the *Mycoplasma*;

(c) probing the sample with the antibody probe to detect at least one antigen; and

(d) isolating the at least one antigen detected.

Claim 85 A method of purifying an antigen associated with a *Mycoplasma*, said method comprising:

(a) providing a crude antigen mixture; and

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(b) providing an antibody against the *Mycoplasma* immobilized on a suitable support;

(c) subjecting the crude antigen mixture to affinity chromatography utilizing the immobilized antibody; and

(d) isolating the purified antigen so formed.

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Claim 86 A method for preparing a synthetic antigenic polypeptide against *Mycoplasma*, which method comprises

(a) providing a cDNA library or genomic library derived from a sample of the *Mycoplasma*;

(b) providing an antibody probe including at least one antibody produced by

(i) providing a biological sample taken a short time after a mammal has been challenged with the *Mycoplasma* or an extract comprising the *Mycoplasma* at an infection or lesion site, said sample being taken from the infection or lesion site or an area close to the infection or lesion site;

(ii) isolating antibody producing cells from the biological sample;

(iii) culturing the isolated cells *in vitro* in a suitable culture medium; and

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(iv) harvesting the at least one antibody from said isolated cells;

(c) generating synthetic polypeptides from the cDNA library or genomic library;

(d) probing the synthetic polypeptides with the antibody probe to detect the synthetic antigenic polypeptide; and

(e) isolating the synthetic antigenic polypeptide detected thereby.

Claim 87 A method according to claim 86, wherein the at least one antibody is raised against an antigen from *Mycoplasma hyopneumoniae* or a related organism, said antigen being selected from the group of native *Mycoplasma* antigens having approximate molecular weights of 110 - 114, 90 - 94, 72 - 75, 60 - 64, 52 - 54 and 46 - 48 kilodaltons (kD) or being a mutant, derivative or fragment of a native *Mycoplasma* antigen that stimulates production of the at least one antibody in said mammal.

Claim 88 A synthetic antigen produced by the method of claim 86.

Claim 89 A vaccine or veterinary composition comprising a prophylactically effective amount of at least one antigen according to claim 76.

Claim 90 A vaccine or veterinary composition comprising prophylactically effective amounts of a plurality of antigens according to claim 76.

Claim 91 A diagnostic kit including an antigen according to claim 76.

Claim 92 A method for preventing or treating *Mycoplasma* infection, which method comprises administering to a mammal a prophylactically or therapeutically effective amount of at least one antigen according to claim 76.

Claim 93 An amino acid sequence or functional equivalent thereof encoded by a DNA fragment comprising SEQ ID NO:1 or a homolog thereof.

Claim 94 An amino acid sequence or functional equivalent thereof comprising SEQ ID NO:2.

REMARKS

The Official Action of November 24, 1999 has been carefully considered and reconsideration of the application as amended is respectfully requested.